Equivalent Circuit of a Spacistor Amplifier

collector current is thus expressed by

$$I_K = - I(1 - \beta) \qquad (3)$$

The flow of currents in the system is represented in Fig.1. The equivalent circuit of a spacistor, that is the capacitances and resistances of the electrodes, should be evaluated separately for each particular case, since they vary considerably depending on the characteristics of the structure. On the other hand, the elements of the active portion (R_i, μ, α, β and γ) can be determined for a general case even though they are comparatively complex. The parameters R_i and μ are independent of frequency and these were evaluated in the earlier work (Ref.2). The quantity β can be evaluated comparatively simply on the basis of Eq.(2) and (3). The resulting expression for β is given by the first equation on p.314. Graphs of β as a function of the frequency parameter $\omega\tau$ are given in Fig.5. It is seen that the imaginary

Equivalent Circuit of a Spacistor Amplifier

part of β is a damped oscillatory function, while the real part tends to unity. The quantity α is evaluated by considering the field produced at the emitter by a linear charge q, which is parallel to the emitter. The situation is illustrated in Fig.6. The resulting expression for α is given by the 3rd equation on p.316. A graph of the function φ is shown in Fig.7. By examining the equation for α it is seen that α is dependent on the width of the emitter a/W and the number of wavelengths contained in the length of a path. The formula for γ is given by the last equation on p.316. It is seen that γ is dependent on the relative width b/W of the current stream and the number of the wavelengths contained in its length. The relationship between the parameter α and γ is also evaluated. The circuit given in the article (together with the relevant parameters) is applicable to a large number of important structures of the spacistor and is valid over the whole operating range of frequencies. The frequency dependent parameters (β, α and γ) are expressed in terms of the geometric factors and the normalized frequency $\omega\tau$. These

S/142/60/000/003/002/017
E192/E482

Equivalent Circuit of a Spacistor Amplifier

expressions are valid for the structures which can be approximated by a plane-parallel system with a flat emitter. The method also permits the evaluation of β in those cases where the depletion layer is not plane-parallel; as regards α and γ the method is valid even if the emitter and the portion of the base near it differ considerably in shape from the parallel model. There are 10 figures and 2 references: 1 Soviet and 1 non-Soviet.

ASSOCIATION: NII pri Goskomitete Soveta Ministrov SSSR po radioelektronike (Scientific Research Institute of the State Committee on Radio Electronics of the Council of Ministers of the USSR)

SUBMITTED: August 31, 1959

32915
S/194/61/000/011/043/070
D271/D302

24.7700 (1035, 1043, 1055)

AUTHOR: Zakharov, A.L.

TITLE: Limitations of NEMAG due to the lack of stability of the negative conductance state

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 11, 1961, 15, abstract 11 D129 (V sb. Poluprovodnik. pribory i ikh primeneniye, no. 6, M., Sov. radio, 1960, 103-124)

TEXT: The negative conductance condition of the NEMAG device is unstable. Negative conductance occurs only at low transverse fields. Negative conductance can be maintained either in pulse operation or when the travel distance is so small that the transit time of carriers in the NEMAG is smaller than the time in which the negative conductance state is destroyed. Criteria of preservation of negative conductance are derived: They relate to the accelerating field E_o and carrier concentration determined by the

Card 1/2

Limitations of NEMAG...

doping level of the semiconductor. Negative conductance is maintained in two cases. 1) Carriers travel in a straight line from the region of energy extremum to the point of scatter on optical phonons. In this case

$$\frac{N + p}{N_*} < \left(\frac{E_0}{E_*}\right)^{1.5}$$

where N is concentration of donors and acceptors, p = concentration of holes in the region of negative conductance; N_* = characteristic doping level (for Ge, $N_* = 6{,}5 \cdot 10^{16}$ cm^{-3}); E_* = characteristic field strength (for Ge, $E_* = 6000$ V/cm). 2) In the length of free travel, transverse field manages to change more than once, hence transverse motions of carriers in space are Brownian. In this case

$$\frac{N + p}{N_*} < \frac{E_0}{E_*}.$$

Time τ is calculated. Physical interpretation of a number of computed results is given. 5 references. [Abstracter's note: Complete translation]

Card 2/2

62968

9,4310

S/142/60/003/002/008/022
E192/E382

AUTHOR: Zakharov, A.L.

TITLE: Low-frequency Parameters of a Spacistor Triode

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiotekhnika, 1960, Vol. 3, No. 2, pp. 233 - 246

TEXT: The spacistor was proposed by Statz and Pucel (Refs. 1, 2). It was found, however, that this device has a comparatively low slope S and voltage-gain coefficient μ, so that its applicability is rather limited. In view of the above, it is important to determine the dependence of S and μ on the geometry of the device and other significant factors. In the following, this problem is considered in detail. The model of the spacistor adopted is shown in Fig. 1, where a semiconductor crystal has a p-n junction which is displaced in the reverse direction; the third electrode (emitter) performs the injection of the current carriers (electrons or holes) into the depletion layer of the junction; this region is marked by the dashed circle in Fig. 1. The arrowed curves in the figure show the paths of the injected carriers in the field of the depletion layer. That portion of the crystal where the injected carriers can move is the collector, while the region on the other side

Card 1/5

Low-frequency Parameters of a Spacistor Triode

of the depletion layer is the base of the device. The operation of the device is analogous to that of an electron tube. Further, it is assumed that the base and the emitter of the model are flat, as shown in Fig. 2. This simplification is justified by the fact that the concavity of the base is accompanied by corresponding concavity of the emitter so that the former is compensated by the latter. Further, the model neglects the fact that the depletion layer is limited in extent. The flat parallel depletion layer (Fig. 4a) can be transformed into a semi-infinite layer (Fig. 4b) by means of the function $\xi = W/\pi \exp(\pi Z/W)$. By considering the model of Figs. 4, it is shown that the field produced by a signal applied to the base is given by:

$$E_F \simeq F_{F_1} = \frac{2aU_B}{\pi(a^2 - y_1^2)} \qquad (1)$$

where U_B is the base voltage. The signal produced by a charge q is given by Eq. (2), where q/ℓ is the linear

Low-frequency Parameters of a Spacistor Triode

density of the charge q . By means of Eq. (1), it is possible to evaluate the fields produced by various types of charges. Thus, it is shown that the field produced by a uniformly distributed charge, having a density $+\rho$, is expressed by Eq. (3) (see Fig. 5). A charge q , which is uniformly distributed over a flat strip AB (see Fig. 6), produces a field which is defined by Eq. (4). On the other hand, a charge which is uniformly distributed over a layer having a width 2b (Fig. 7) produces a field which is expressed by the last equation on p. 239. A charge distributed in the space limited by the emitter, collector and two symmetrical planes (Fig. 8) results in a field which is defined by Eq. (5). The field, produced by a charge which is uniformly distributed in a parallel layer but is nonuniform in the plane perpendicular to the plane of symmetry (Fig. 9), is given by Eq. (7). On the basis of the above formulae, it is found that:

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82968
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E192/E382

Low-frequency Parameters of a Spacistor Triode

$$S = \frac{\frac{2}{r_a} - \frac{1}{W}}{4 \ln \frac{W}{b}} \varepsilon \ell v_{Hac} \approx \frac{\varepsilon \ell v_{Hac}}{2 r_a \ln \frac{W}{b}}$$

$$\mu = \frac{\frac{2}{r_a} - \frac{1}{W}}{\frac{1}{W}} \approx \frac{2W}{r_a} ;$$

$$R_i = \frac{4W}{\varepsilon \ell v_{Hac}} \ln \frac{W}{b}$$

Card 4/5

Low-frequency Parameters of a Spacistor Triode

where R_i is the collector output impedance of the device.

These formulae illustrate the dependence of S and μ on the geometry of the device. However, the three geometrical factors W, a and b are dependent on the operating conditions. This dependence is investigated in detail and it is shown that S is expressed by the last equation on p. 245, where U_{cut} is the cut-off voltage of the device. Analysis of the available experimental data shows that the theory is in satisfactory agreement with the experiment. There are 12 figures and 7 references: 6 English and 1 German.

ASSOCIATION: NII Gos. Komitet Soveta Ministrov SSSR po radioelektronike
(NII of the State Committee of the Radio-Electronics Council of Ministers of the USSR)

SUBMITTED: August 31, 1959

Card 5/5

85318

S/142/60/003/004/002/013
E192/E382

9,4310 (3203, 2104, 1143)

AUTHOR: Zakharov, A.L.

TITLE: Frequency Characteristics of Spacistor Triodes

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiotekhnika, 1960, Vol. 3, No. 4, pp. 431 - 440

TEXT: It is assumed that the criterion developed by Mason (Ref. 2) is a satisfactory method of assessing the frequency characteristics of high-frequency amplifying devices such as spacistors. This criterion permits the determination of the maximum oscillation frequency of the device. Mason derived a formula for the so-called U-function:

$$U = \frac{|y_{12} - y_{21}|^2}{4(g_{11}g_{22} - g_{12}g_{21})} = \frac{|z_{12} - z_{21}|^2}{4(R_{11}R_{22} - R_{21})} \qquad (1)$$

which shows that, if at a given frequency one of the parameters R_{11} and R_{22} or g_{11} and g_{22} is negative, the device is an absolute amplifier. This means that if passive elements are

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S/142/60/003/004/002/013
E192/E382

Frequency Characteristics of Spacistor Triodes

connected to the device, it is possible to obtain an oscillator or a unidirectional amplifier having an arbitrarily large gain. If at a given frequency the parameter g_{11} and g_{22} or R_{11} and R_{22} are positive and if U lies between unity and 0, the device cannot become an oscillator or an amplifier. An equivalent circuit of a spacistor which was described by the author in an earlier work (Refs. 3 and 4) is considered. The circuit is shown in Fig. 1. The frequency dependent parameters α, β and γ in this circuit were calculated in one of the earlier works and were given graphically; the parameters μ and R_1 were determined by means of suitable formulae (Refs. 3 and 4). In order to evaluate the U-function (see Eq. (1)) it is desirable to simplify the circuit of Fig. 1. The circuit can be represented approximately by the circuits of Fig. 6. The Mason function can therefore be expressed by

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E192/E382

Frequency Characteristics of Spacistor Triodes

$$U \geq \frac{0.25 \left| P - \frac{Q}{\mu} \right|^2}{\omega^2 R_1 \left\{ \left[R_{36} + R_6 \left(1 + \frac{\mu C_{k6}}{C_{36}} \right) \right] \left(\frac{C_{36}}{\mu} \right)^2 + \frac{R_k}{\mu} C_{k6}^2 \right\}}$$

where P and Q are defined by the formulae on p. 433. The maximum oscillation frequency ω_M can therefore be determined from the condition that $U = 1$. This condition can also be expressed by:

$$f_M \geq \frac{\psi(A)}{\tau} \qquad (7).$$

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S/142/60/003/004/002/013
E192/E382

Frequency Characteristics of Spacistor Triodes

On the basis of the above analysis it is concluded that a spacistor has the following advantages as compared with a transistor: 1) It is possible to obtain very low base resistances due to the inherent properties of the device; 2) the emitter and the base in a spacistor can be separated by means of a high-resistance material. The formulae derived (as well as those of the earlier articles) are used to determine the maximum frequency of two spacistors. It is found that the maximum frequencies can be as high as 9 000 Mc/s, provided the structure of the device is suitably chosen and accurately controlled.
There are 7 figures and 5 references: 3 English and 2 Soviet.

ASSOCIATION: NII pri Goskomitete Soveta Ministrov SSSR po radioelektronike (Scientific Research Institute of the State Committee on Radioelectronics of the Council of Ministers of the USSR)

SUBMITTED: September 14, 1959

Card 4/4

8207

S/056/60/038/02/61/061
B006/B014

9.4300

AUTHOR: Zakharov, A. L.

TITLE: An Unsteady Phenomenon in a Semiconductor With a Negative Effective Carrier Mass

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 38, No. 2, pp. 665-667

TEXT: H. Kroemer (Ref. 1) has shown that p-type germanium or silicon crystals having strong fields in the [100] direction ("longitudinal" direction) exhibit n-type conductivity in the directions perpendicular to [100] ("transverse" direction). On the basis of this effect a new semiconductor device was suggested by Kroemer: NEMAG (Negative Effective Mass Amplifier and Generator). The mode of operation of this device is briefly described in the present "Letter to the Editor". Its theory is explained in a merely qualitative manner, and some specific features of its field- and charge distributions are mentioned, particularly the fluctuation phenomena. In fact, the distribution of charge and field in NEMAG seems to be much more complicated than has been assumed by Kroemer.

Card 1/2

An Unsteady Phenomenon in a Semiconductor With a Negative Effective Carrier Mass

82037
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B006/B014

In contrast with what has been said by Kroemer, the generator has a small performance, a high noise production, and may thus be used as a noise generator. There is 1 non-Soviet reference.

SUBMITTED: December 8, 1959

Card 2/2

ZAKHAROV, A. L., CAND PHYS-MATH SCI, "THEORETICAL INVESTIGATION OF AMPLIFICATION AND FREQUENCY PROPERTIES OF A SPACISTOR TRIODE." MOSCOW, 1961. (MIN OF HIGHER AND SEC SPEC ED RSFSR, MOSCOW PHYS-TECH INST). (KL, 3-61, 203).

ZAKHAROV, Arkadiy Mikhaylovich, kand. tekhn.nauk; MARKOV, Viktor Sergeyevich, dots., kand. tekhn. nauk; YUDITSKIY, F.L., dots., kand. tekhn.nauk, retsenzent; MYASNIKOV, N.V., red.; KAN, P.M., red.izd-va; BODROVA, V.A., tekhn. red.

[Steam power plants on river-going vessels and an increase in the efficiency of their operation] Parosilovye ustanovki rechnykh sudov i povyshenie effektivnosti ikh raboty. Moskva, Izd-vo "Rechnoi transport," 1961. 207 p. (MIRA 15:10)
(Boilers, Marine) (Steam turbines, Marine)

DENOVA, A.A.; ZAKHAROV, A.M.; KOLLA, V.E.

Effect of Carlina biebersteinii on the resistance of white mice to radial acceleration. Farm.i toks. 23 no.2:177 Mr-Ap '60. (MIRA 14:3)

1. Permskiy farmatsevticheskiy institut.
(ACCELERATION—PHYSIOLOGICAL EFFECT) (THISTLE)

9.4100
15 2660

27993
S/194/61/000/004/036/052
D266/D302

AUTHOR: Zakharov, A.M.

TITLE: On magnetic circuits in metalloceramic tubes

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 4, 1961, 15, abstract 4 G99 (Tr. uchebn. in-tov svyazi. M-vo svyazi SSSR, 1960, no. 1, 85-91)

TEXT: The magnitude and role of magnetic circuits in metalloceramic tubes is investigated with the aim of finding the frequency of self-neutralization (anode-cathode conductance zero). The investigation was carried out with the aid of a resonance method. The measurements were performed in the frequency band 0.7-3.1 Mc/s. It is concluded that the role of magnetic circuits can be neglected in the frequency band for which the tubes are designed. [Abstracter's note: Complete translation]

Card 1/1

27769
S/058/61/000/007/077/086
A001/A101

9, 2510 (1144, 1331)

AUTHOR: Zakharov, A.M.

TITLE: Input conductivity of amplifier on decimeter waves

PERIODICAL: Referativnyy zhurnal.Fizika no.7, 1961, 332-333, abstract 7Zh373 ("Tr. uchebn. in-tov svyazi. M-vo svyazi SSSR", 1960, no.3, 3-16)

TEXT: The author considers the effect of resonance load in the anode circuit, by means of intratube coupling elements, on the input conductivity of an amplifier with a common grid. Transformations are carried out taking into account the phase shift between oscillating voltages on electrodes due to spacing relations in the tube. It is shown that it is possible to obtain simpler relations for the conductivity of the amplifier input circuit by introducing equivalent values of C_{ak}, $R_i\varphi$ and parameters of intratube coupling; these relations are analogous to relations derived without taking into account inertia of electrons. The data of experimental measurements of the amplifier input circuit are presented and compared with the results of calculations.

4

[Abstracter's note: Complete translation]

Card 1/1

27770
S/058/61/000/007/078/086
A001/A101

9.2510 (1144, 1331)

AUTHOR: Zakharov, A.M.,

TITLE: Self-neutralization in decimeter wavelength amplifiers

PERIODICAL: Referativnyy zhurnal. Fizika, no. 7, 1961, 333, abstract 7Zh374 ("Tr. uchebn. in-tov svyazi. M-vo svyazi SSSR", 1960, no.4, 19-30)

TEXT: The author considers the method of determining parameters of intratube coupling and limits of their variation, as applied to amplifiers operating with tubes of metal-ceramic series in the range of decimeter wavelengths. It is shown that spacing relations in the tube affect essentially the magnitude of intratube coupling parameters and that a partial self-neutralization of the amplifier is possible under certain conditions. It is pointed out that in the case of self-neutralization, it is possible to obtain symmetric amplitude and phase-frequency characteristics of the equivalent grid circuit of the amplifier.

O. Lysogorskiy

[Abstracter's note: Complete translation]

Card 1/1

ZAKHAROV, A. M.

Zakharov, A. M. — "Investigation of the Work of the MP-10 Series Steam Engine and the Methodology of Plotting Its Characteristics." Min River Fleet USSR, Leningrad Inst of Engineers of Water Transport, Leningrad, 1955 (Dissertation for the Degree of Candidate in Technical Sciences)

SO: Knizhnaya Letopis', No 24, 11 June 1955, Moscow, Pages 91-104

ZAKHAROV, A.M.

ZAKHAROV, A.M.

[Using universal conveyers in primary processing of swine and sheep] Primenenie universal'nogo konveiera dlia pervichnoi pererabotki svinei i ovets. Moskva, Pishcheprominizdat, 1956. (MIRA 11:3)
(Packing houses)

ZAKHAROV, A.M., kand.tekhn.nauk; GOPPE, Yu.L., inzh.

Efficient systems for air ejectors used with condensers. Rech.transp. 18 no.2:30-31 F '59. (MIRA 12:4)
(Air ejectors) (Condensers (Steam))

S/194/61/000/008/086/092
D201/D304

9,4110

AUTHOR: Zakharov, A.V.

TITLE: Self-neutralization of decimetric wave-length amplifiers

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 8, 1961, 13, abstract 8 K94 (Tr. uchebn. in-tov svyazi, M-vo svyazi SSSR, 1960, v. 4, 19-30)

TEXT: Methods are considered for determining the parameters of inter-electrode coupling and ranges of their variation for metal-ceramic valves. The possibility is investigated of full and partial self-neutralization (S) of amplifiers in the decimetric wave-range. The graphical interpretation of the S condition is given which makes it possible to see clearly that S is possible and permits determination of the conditions of operation and the wave-length at which this effect takes place, judging the degree of assym-V/B etry of resonant curves of the input circuit; determining the rela-

Card 1/2

Self-neutralization...

tive merits of various types of valves and recommending the use in amplifiers of those which produce at a given wavelength more symmetrical resonance responses. 5 references. [Abstracter's note: Complete translation] VB

Card 2/2

ZAKHAROV, A.M.

Investigating the heat-resistance of certain aluminum alloys subject to plastic deformation. Izv.vys.ucheb.zav.; tsvet.met. 2 no.1:121-128 '59. (MIRA 12:5)

1. Moskovskiy institut tsvetnykh metallov i zolota. Kafedra metallovedeniya.
(Aluminum alloys--Testing)
(Metals at high temperature)

S/194/61/000/010/063/082
D271/D301

9,3240

AUTHOR: Zakharov, A.M.

TITLE: Input conductance of dm wave amplifier

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 10, 1961, 12, abstract 10 I86 (Tr. uchebn. in-tov svyazi. M-vo svyazi, SSSR, 1960, no. 3, 3-16)

TEXT: Previously, resonance characteristics were considered of the grid circuit of a grounded grid amplifier, taking into account internal tube couplings and a resonance load in the anode. Relationships which were derived are valid if the effect of electron transit time in the tube can be neglected. In the present paper, the method previously proposed is expanded to cover a more general case when transit time effects in the tube have to be taken into account. The amplifier is considered as an active linear four-terminal network. It is shown that through the introduction of equivalent values $C_{ak\varphi}$, $R_i\varphi$ and parameters of internal tube couplings

Card 1/2

Input conductance...

it is possible to derive simple expressions for the input conductance of the amplifier, corresponding to those obtained when the inertia of electrons was neglected. Results of experimental measurements of the amplifier input circuit are shown; they are also compared with the analytical results. 6 figures. 6 references.
[Abstracter's note: Complete translation]

Card 2/2

S/689/61/000/000/002/0[illegible]
D205/D303

18.1210 (2402)

AUTHORS: Fridlyander, I.N., and Zakharov, A.M.

TITLE: Strengthening of aluminum by Mg_2Ge

SOURCE: Fridlyander, I.N., V.I. Dobatkin, and Ye.D. Zakharov, eds. Deformiruyemyye alyuminyevyye splavy; sbornik statey. Moscow, 1961, 9 - 16

TEXT: It was assumed that Mg_2Ge has a limited solubility in Al and its strengthening action is analogous to that of Mg_2Si, $MgZn_2$ etc. The present work gives the result of microscopic, X-ray, microhardness and DTA investigations of the Al-Mg_2Ge alloys and their mechanical properties as a function of thermal treatment regimes. 99.93 % Al, 99.91 % Mg and 99.993 % pure Ge were employed for the preparation of alloys containing 0.22, 0.45, 0.6, 0.9, 1.35, 1.9, 2.7, 3.5 and 4.3 % Mg_2Ge (w/w). 1 Kg ingots were homogenized at 550°C for 12 hours and pressed at 430°C into 10 mm diameter rods. The samples were quenched

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Strengthening of aluminum by Mg_2Ge

from 600, 500 and 350°C after annealing for 2, 4 and 8 days respectively. Crystal lattice parameters and microhardness measurements were performed. On the basis of the measurements the Al corner of an Al-Mg_2Ge diagram was constructed. The maximum solubility of Mg_2Ge is about 1.2 %, at 600°C about 1 %, at 500°C - 0.5 %, at 350°C - 0.3 %. Tensile strength, relative elongation and wasting were measured on annealed (360°C - 2 hours), quenched (from 600°C), naturally (7, 14 and 28 days) and artificially aged (at 160°C during 4, 8, 12 and 16 hours and at 180°C during 2, 4, 8 and 12 hours) alloys. The results are plotted. It is shown that the Al-Mg_2Ge alloys are strengthened by quenching with subsequent natural or accelerated ageing. Quenching increases the tensile strength only slightly. On natural ageing, strengthening takes place mainly during the first 7 days; during the accelerated ageing strengthening occurs in the first 4 hours at 160°C and the first 2 hours at 180°C. The maximum tensile strengths of 25 - 28 and 30 - 32 kg/mm^2 for the naturally and artificially aged alloys respectively were shown by alloys containing 2.7 % Mg_2Ge, i.e. outside the α-solid solution zone. Parallel to the increase of tensile strength

Strengthenging of aluminum by Mg_2Ge S/689/61/000/000/002/03.
D205/D303

the relative elongation and wasting decrease. This work confirms the analogy between the Al-Mg_2Ge and Al-Mg_2Si or Al-$MgZn_2$ alloys. The data on the limited solubility of Mg_2Ge in Al are consistent with the solubility series of the compounds Mg_2Si, Mg_2Ge, Mg_2Sn and Mg_2Pb in which the solubility decreases practically to zero passing from Mg_2Si to Mg_2Pb. There are 5 figures and 10 references: 5 Soviet-bloc and 5 non-Soviet-bloc. The reference to the English-language publication reads as follows: L.F. Mondolfo, Metallography of Aluminum Alloys, New York, 1943.

Card 3/3

37982

S/137/62/000/005/112/150
A006/A101

18.1210(2408)

AUTHORS: Fridlyander, I. N., Zakharov, A. M.

TITLE: Phase diagram and mechanical properties of Al-AlAgMg alloys

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 5, 1962, 74, abstract 5I447 (V sb. "Deformiruyemyye alyumin. splavy", Moscow, Oborongiz, 1961, 17 - 23)

TEXT: The authors studied solubility of the AlAgMg compound in Al and also the mechanical properties of Al-AlAgMg alloys depending on heat treatment conditions. Alloys containing about 2.4; 3.6; 4.8; 6.0; 8.4; 10.8; 13.2 and 16.8 weight % AlAgMg, were prepared by melting at 720 - 740°C from Al of 99.93% purity; Mg of 99.91% and Ag of 99.98% purity. Parallel with an increase in σ_b, and of the alloys decrease, to a lower degree in natural and to a higher degree in artificial aging. Maximum σ_b in naturally and artificially aged state (σ_b 34 - 35 and 37 - 40 kg/mm^2 respectively) is shown by alloys containing about 13.2% AlAgMg. Maximum quenching effects are shown by alloys of the heterogeneous range, and maximum effects of natural and artificial aging are shown by

Card 1/2

Phase diagram and...

alloys in the solid solution range. In alloys containing 2.4 - 10.8% of the AlAgMg compound, the effect of natural aging exceeds the quenching effect, while in more alloyed alloys it is, on the contrary, below the quenching effect. The maximum effect of artificial aging is shown by alloys in the solid solution range which contain 10.8 - 13.2% of the AlAgMg compound.

T. Rumyantseva

[Abstractor's note: Complete translation]

Card 2/2

S/149/61/000/001/010/013
A006/A001

AUTHOR: Zakharov, A.M.

TITLE: On the Problem of Determining the Boundaries of Alpha-Solution in a Al-Zn-Mg-Cu Quaternary System

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Tsvetnaya metallurgiya, 1961, No. 1, pp. 124 - 127

TEXT: During the transition from a single-phase to two or three-phase regions of a phase diagram, variations occur in the law of changes in the solid solution composition and consequently in its properties, too. Therefore the methods of X-ray analysis, electric conductivity and microhardness, used to establish the boundaries of solid solutions in binary and ternary systems, are based on the determination of break points in the curves of composition versus properties of the solid solution. The author assumes that these methods are also applicable to more complicated quaternary systems. To check this assumption an investigation was carried out under the supervision of I.N. Fridlyander, Doctor of Technical Sciences, and I.I. Novikov, Candidate of Technical Sciences. Using the aforementioned methods, the boundary of a solid solution of aluminum was established

B/149/61/000/001/010/013
A006/A001

On the Problem of Determining the Boundaries of Alpha-Solution in a Al-Zn-Mg-Cu Quaternary System

at 430 and 460°C on six secondary sections of the Zl-Zn-Mg-Cu quaternary system whose alloys contained 4, 6 and 8% Zn; 0.5 and 1.0% Cu and from 0.5 to 7.0% Mg each, the rest Al. The sections were obtained by microscopical and differential-thermal analysis. Alloys of 200 g weight were prepared on the base of aluminum (99.95% purity), magnesium (99.945% purity) zinc (99.95%) aluminum alloy plus 50% copper. Melting was performed in an electric furnace in corundise crucibles under a carnallite layer. Specimens of 15 x 15 x 10 mm dimensions were manufactured from ingots which were homogenized for 48 hours at 400 ± 5°C and upset by 75-80%. The microscopical analysis of the alloys was made at 460, 430 and 200°C. Microhardness, the lattice parameter, and electric conductivity were measured at 460 and 430°C on specimens which had been subjected to extended annealing in order to obtain an equilibrium state of the alloys. To identify the different phases during microscopical analysis of the alloys, the following etching agents were used: 10% NaOH solution at 20° and 60 - 80°C, etching time: 30 - 60 and 10 - 15 seconds respectively; the Keller reagent (0.5% HF + 1.5% HCl + 2.5% NHO_3 + 95.5% H_2O) 20 - 30 sec; 0.5% HF solution; 15 - 30 sec; concentrated HNO_3, 5 - 7 sec; 2% HNO_3 solution (in alcohol), 15 - 20 sec; and concentrated NHO_3 vapors, 7 - 10 sec. For

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S/149/61/000/001/010/013
A006/A001

On the Problem of Determining the Boundaries of Alpha-Solution in a Al-Zn-Mg-Cu Quaternary System

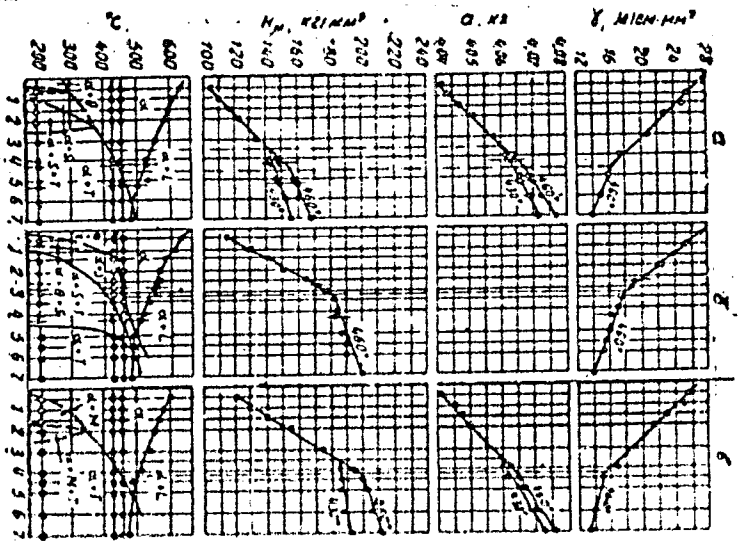
microhardness measurement, sections of specimens were prepared by a method recommended in Reference 9, using 10% NaOH solution as an etching agent. Microhardness was determined on a ПМТ-3 (PMT-3) device under 20 g load. The lattice parameter was measured using the method of reverse X-ray exposure on a plane film with copper radiation. Electric conductivity of the alloys was measured by the method of eddy current on a device described in Reference 10. The secondary sections and results of measuring the microhardness ($H\mu$), the lattice parameter (a) and electric conductivity (γ) of the alloys of these sections are given in Figure 2. It is shown that the results obtained agree with data of microscopical analysis and are mutually consistent. It was found that on the secondary sections in equilibrium with quaternary solid aluminum solutions θ, S and T phases were present in alloys with 4% Zn; in alloys with 6 and 8% Zn an additional M phase was observed. The author concludes that the results obtained are in agreement with data presented by V.I. Mikheyeva and B.D. Galatskiy (Ref. 26) who determined the joint solubility of Zn, Cu and Mg in solid aluminum from the Al-$CuMg_2Zn_2$ and Al-$CuMg_2Zn_4$ sections.

Card 3/6

S/149/61/000/001/010/013
A006/A001

On the Problem of Determining the Boundaries of Alpha-Solution in a Al-Zn-Mg-Cu Quaternary System

Figure 2



Card 4/6

S/149/61/000/001/010/013
A006/A001

On the Problem of Determining the Boundaries of Alpha-Solution in a Al-Zn-Mg-Cu Quaternary System

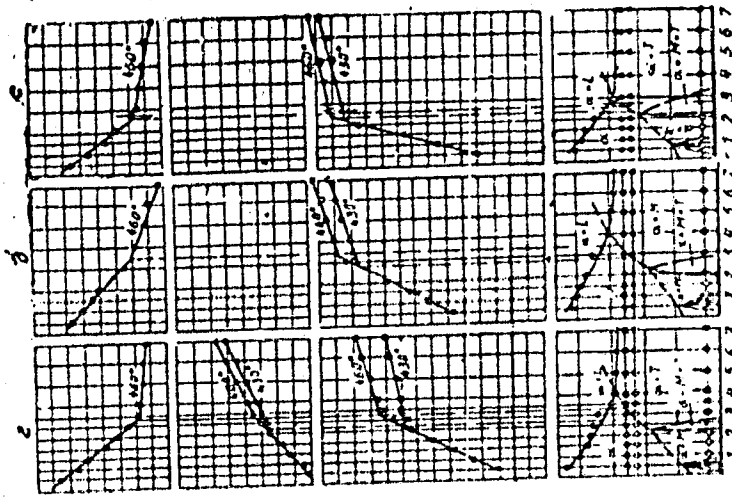


Figure 2 continued

The effect of magnesium on microhardness ($H\mu$), the lattice parameter (a) and electric conductivity (γ) of aluminum alloys, dependent on their content of zinc and copper; a - 4% Zn + + 0.5% Cu; b - 4% Zn + 1% Cu; c - 6% Zn + 0.5% Cu; d - 6% Zn + 1.0% Cu; e - 8% Zn +0.5% Cu; f - 8% Zn + 1% Cu.

Card 5/6

S/149/61/000/001/010/013
A006/A001

On the Problem of Determining the Boundaries of Alpha-Solution in a Al-Zn-Mg-Cu Quaternary System

There are 2 figures and 26 references: 16 Soviet, 6 English, 3 French and 1 German.

ASSOCIATION: Krasnoyarskiy institut tsvetnykh metallov i VIAM (Krasnoyarsk Institute of Non-Ferrous Metals and VIAM)

SUBMITTED: March 9, 1960

This article was recommended for publication by the Department of Metal Science of the aforementioned Institute.

Card 6/6

ZAKHAROV, A.M.

Determination of alpha-solution boundaries in the quarternary system Al - Zn - Mg - Cu. Izv. vys. uchob. zav.; tsvet. met. (MIRA 14:2)
4 no. 1:124-127 '61.

1. Krasnoyarskiy institut tsvetnykh metallov i Vsesoyuznyy nauchno-issledovatel'skiy institut aviatsionnykh materialov.
(Aluminum-zinc-magnesium-copper alloys--Metallography)
(Phase rule and equilibrium)

S/078/61/006/005/010/015
B121/B208

AUTHORS: Zakharov, A. M., Fridlyander, I. N., and Edel'man, N. M.

TITLE: Study of the phase diagram of the quaternary system Al-Zn-Mg-Cu in the range of high aluminum content

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 6, no. 5, 1961, 1165 - 1171

TEXT: In order to clarify some contradictory data on the phase composition of the alloys of the system Al-Zn-Mg-Cu in the papers by G. V. Kelevich-Kizilevich (Ref. 24: Kandidatskaya dissertatsiya, MATI, 1947) and by D. G. Straubridge, W. Hume-Rothery, and A. T. Little (Ref. 28: J. Inst. Met., 74, 191, 1947) the authors studied various alloys of this system at temperatures of 430 and 200°C. The alloys with compositions of 4, 6, and 8% zinc, of 0,5-5% and 0,5-7% Cu and Mg, the rest Al, were prepared in the electric furnace. 99,95% Al, 99,945% magnesium, and 99,95% Zn were used as initial materials. The alloys were microscopically examined after hardening and annealing at the corresponding temperatures.

Card 1/3

S/078/61/006/005/010/015
B121/B208

Study of the phase diagram of ...

To attain the equilibrium state, the alloys were subject to heat treatment in the following way: The samples were slowly heated to 460°C in evacuated quartz ampuls, and left for 7 hr at this temperature. A part of the samples was then hardened, and the rest was cooled to 430°C. After 10 hr the samples were hardened by a stepwise thermal process for 15 hr at 315°C, and for 18 hr at 300°C, then cooled to 200°C within 48 hr, and hardened again with cold water. The following etching agents were used to develop the various phases for studying the alloys: 10% NaOH, Keller reagent (0.5 % HF + 1.5 % HCl + 2.5 % HNOS + 95.5 % H_2O) 20-30 sec, 0.5 % HF 15-30 sec, 2% HNO_3 solution 15-20 sec, concentrated HNO_3 5-7 sec, and vapors of concentrated HNO_3 7-10 sec. The phases Q ($CuAl_2$), S(Al_2CuMg), and T (solution of Al_6CuMg_4 and $Al_2Zn_3Mg_3$) were found to be present in equilibrium in alloys with a 5% Zn content at temperatures of 460, 430, and 200°C. The appearance of a phase Z in the alloys with 8% zinc is possible not only at 460°, but also at lower temperatures such as 430 and 200°C. To determine the phases of the alloys with 6 and 8% zinc, the grindings were etched with vapors of concentrated nitric acid. The

Card 2/3

Study of the phase diagram of ...

stabilizing phases for the economic high-strength alloys were determined from the results obtained. The phases M, S, and T appear as the stabilizing phases for the alloys B 95 (V 95) (5-7.0 % Zn, 1.4-2.0 % Cu, 1.8-2.8 % Mg, 0.2-0.6 % Mn, 0.1-0.25 % Cr, rest Al), B 96 (V 96) (7.6-8.6 Zn, 2.2-2.8 % Cu, 2.5-3.2 % Mg, 0.2-0.5 % Mn, 0.1-0.25 % Cr, rest Al), and the phases M and S for the alloy B 94 (V 94) (6.0-6.7 % Zn, 1.8-2.4 % Cu, 1.2-1.6 % Mg, 0.02-0.08 % Ti, rest Al). For the alloy B 93 (V 93) (6.8-7.8 % Zn, 0.8-1.2 % Cu, 1.7-2.1 % Mg, rest Al) the phase M, and for the alloy B 93 - 1 (V 93 - 1)(5.0-5.6 % Zn, 0.8-1.2 % Cu, 2.8-3.6 % Mg, rest Al) the phases T, S, and possibly M appear as the stabilizing phases. There are 4 figures and 39 references: 17 Soviet-bloc and 22 non-Soviet-bloc. The four most recent references to English-language publications read as follows: Ref. 9: W. Köster, W. Dullenkopf, J. Metals, 28, 363 (1936); Ref. 10: W.L. Fink, L.A. Willey, TAIMME, 124, 78 (1937); Ref. 11: E. Butchers; G. V. Raynor, W. Hume-Rothery, J. Inst. Met., 69, 209 (1943); Ref. 12: A. T. Little, G. V. Raynor, W. Hume-Rothery, J. Inst. Met., 69, 423 (1943).

SUBMITTED: April 22, 1960
Card 3/3

SAVITSKIY, Ye.M.; ZAKHAROV, A.M.

Phase diagram of the ternary system consisting of niobium - tungsten - zirconium. Zhur.neorg.khim. 7 no.11:2575-2580 N '62. (MIRA 15:12)
(Niobium-tungsten-zirconium alloys)

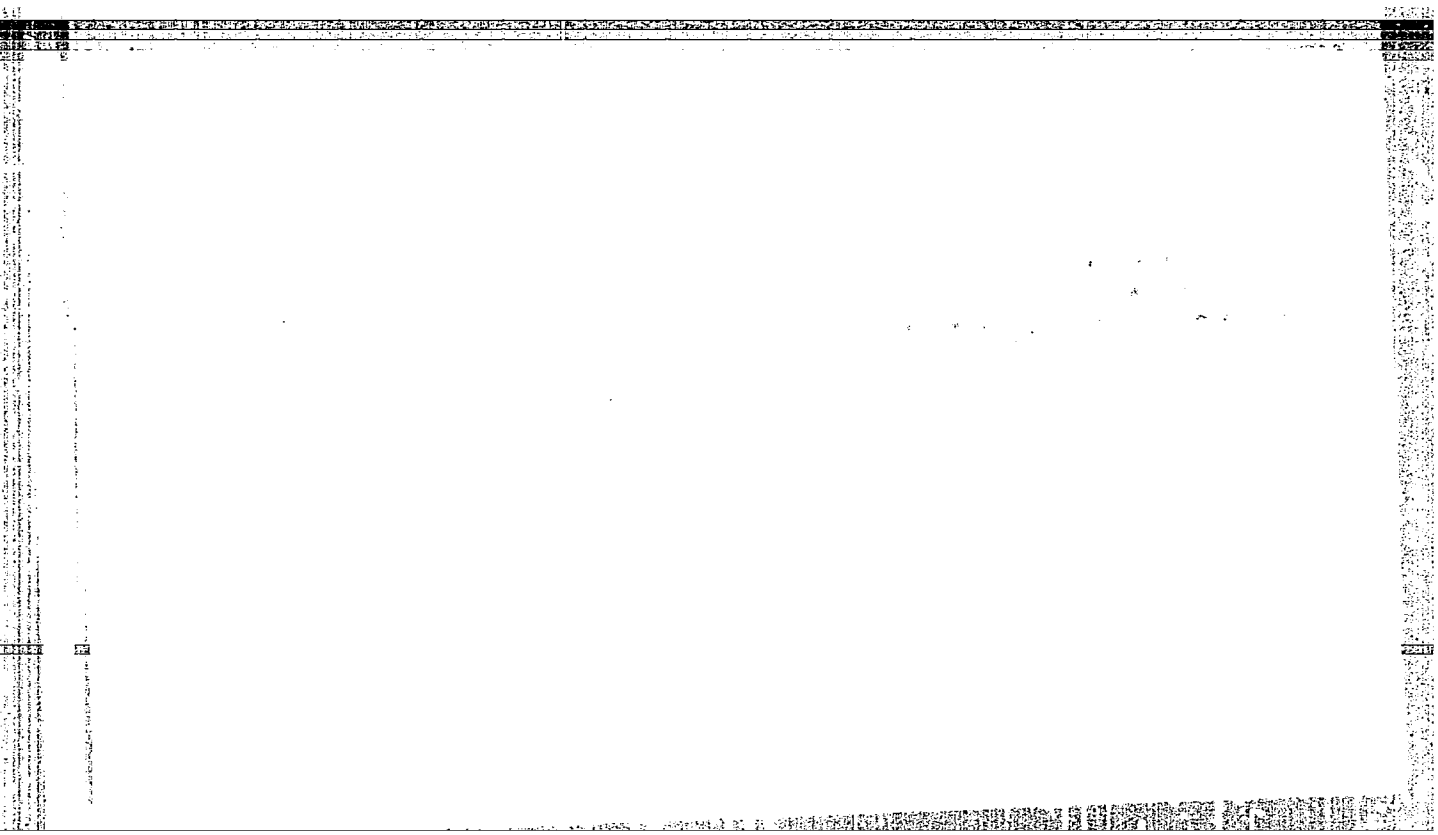
SAVITSKIY, Ye.M.; ZAKHAROV, A.M.

Investigating ternary systems niobium - tungsten - zirconium and niobium - molybdenum - zirconium. Issl. splav. tsvet. met. no.4:108-116 '63. (MIRA 16:8)

(Niobium-tungsten-zirconium alloys--Metallography)
(Niobium-molybdenum-zirconium alloys--Metallography)
(Phase rule and equilibrium)

ZAKHAROV, Anatoliy Mikhaylovich, prof., doktor tekhn. nauk; ref.;
MAL'TSEV, M.V., prof., doktor tekhn. nauk, retsenzent

[Diagrams of the constitution of binary and ternary systems]
Diagrammy sostoianii dvoinykh i troinykh sistem. Moskva,
Izd-vo Metallurgiia, 1964. 299 p. (MIRA 17:4)



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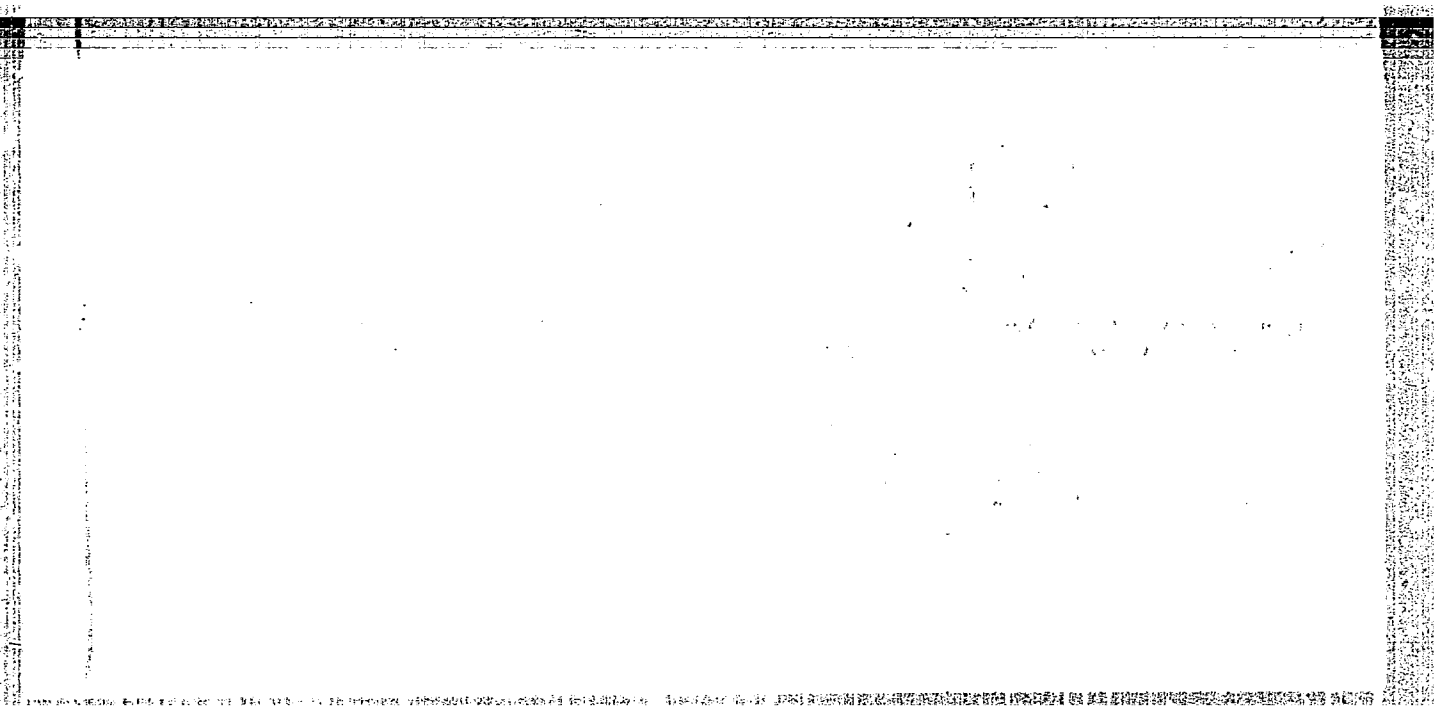

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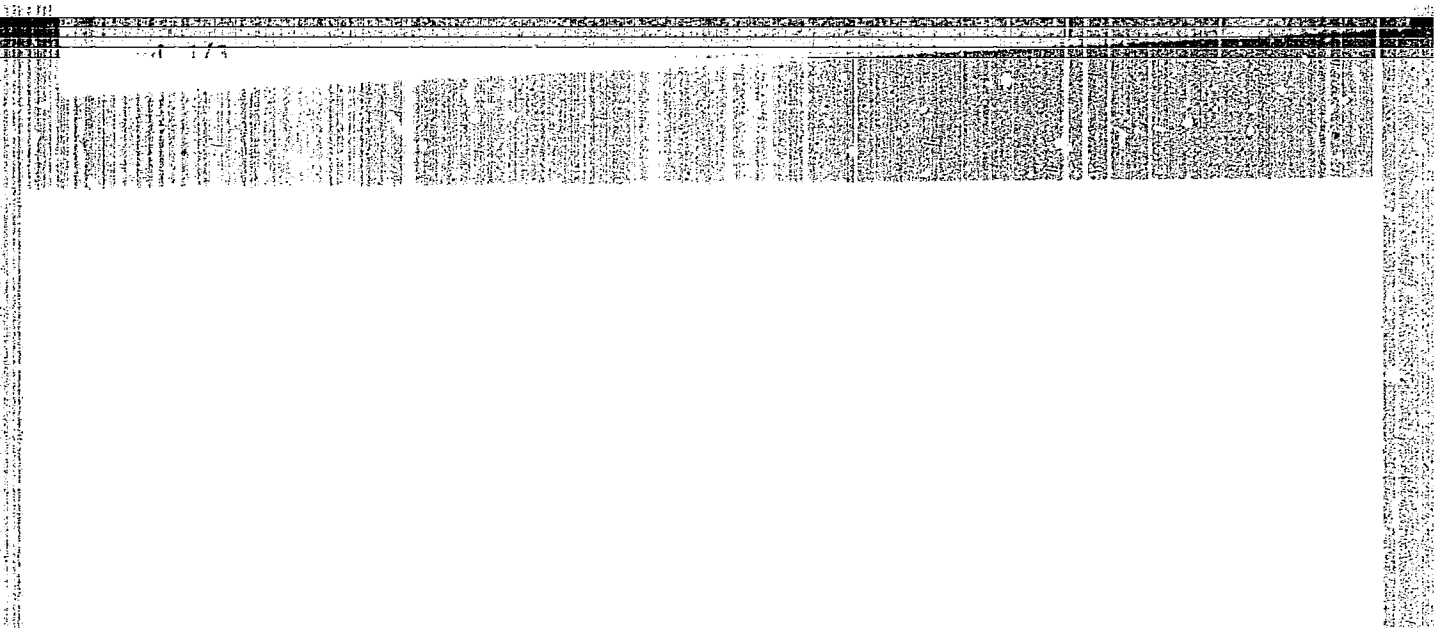

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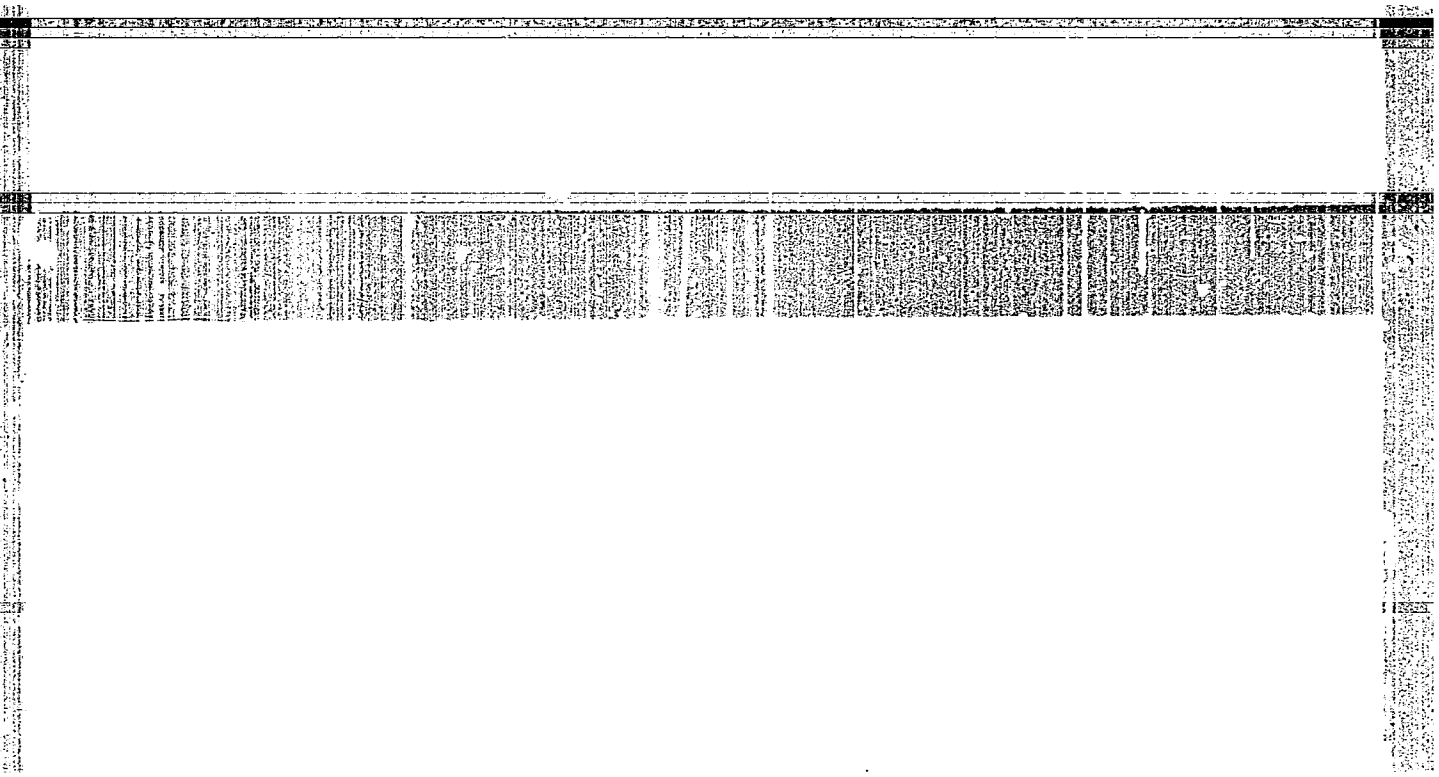

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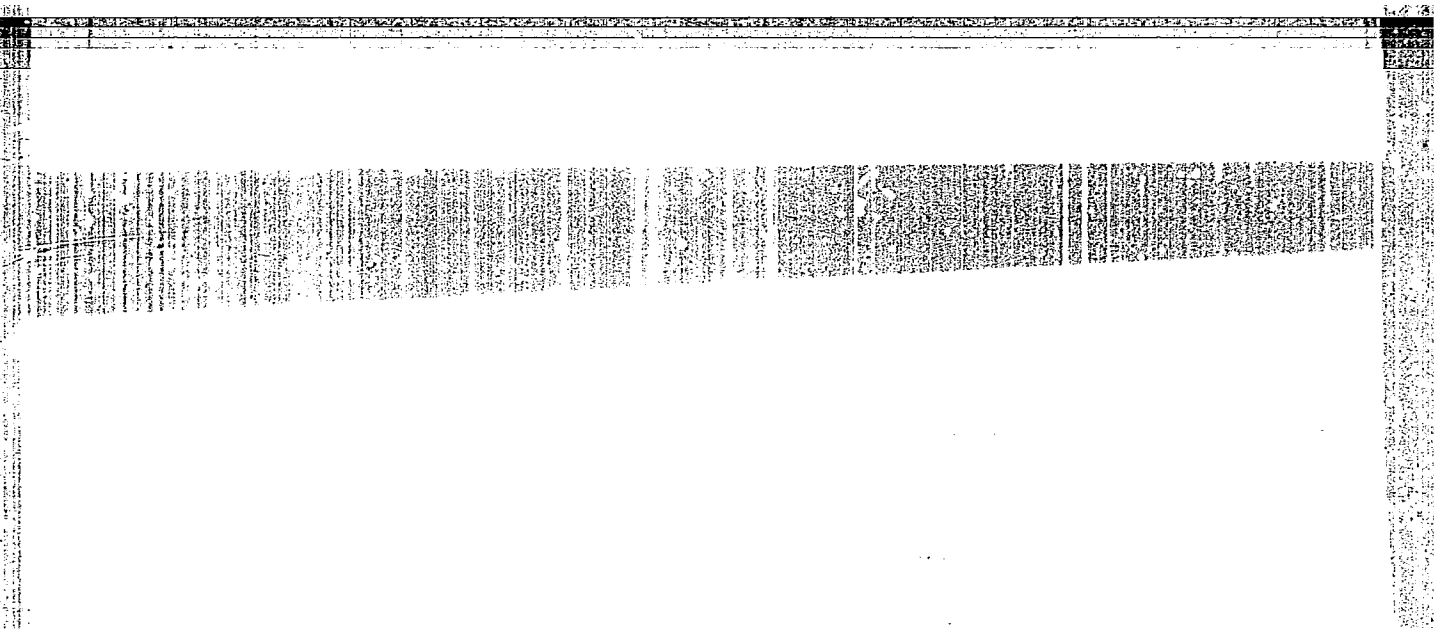

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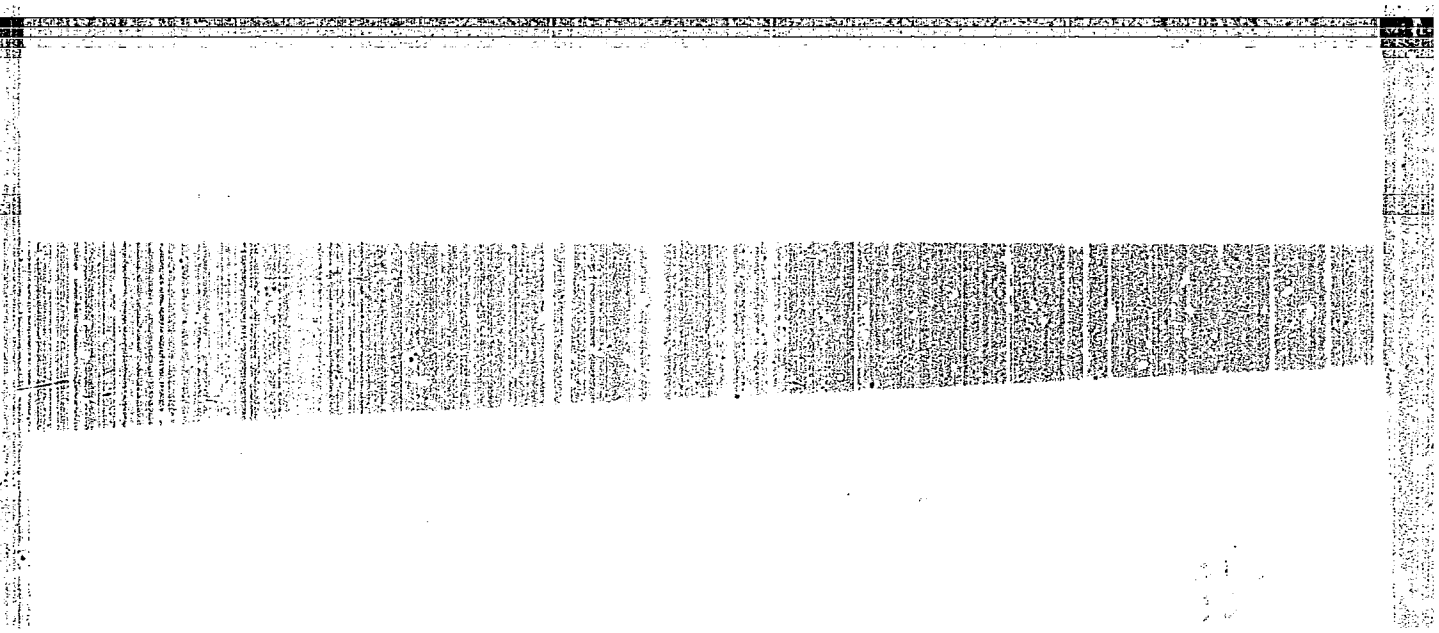


APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963520006-9"

SAVITSKIY, Ye.M.; ZAKHAROV, A.M.

Mechanical properties of alloys in the quaternary system Nb - W - Mo - Zr at temperatures of 1000 - 1600° C. Izv. vyz. ucheb. zav.; chern. met. 8 no.1:104-109 '65
(MIRA 18:1)

1. Institut metallurgii im. Baykova, Moskva.

ACC NR: AP6036444 SOURCE CODE: UR/0370/66/000/006/0121/0126

AUTHOR: Zakharov, A. M. (Moscow); Savitskiy, Ye. M. (Moscow)

ORG: none

TITLE: Investigation of the phase diagram of the ternary W-Mo-Ti system

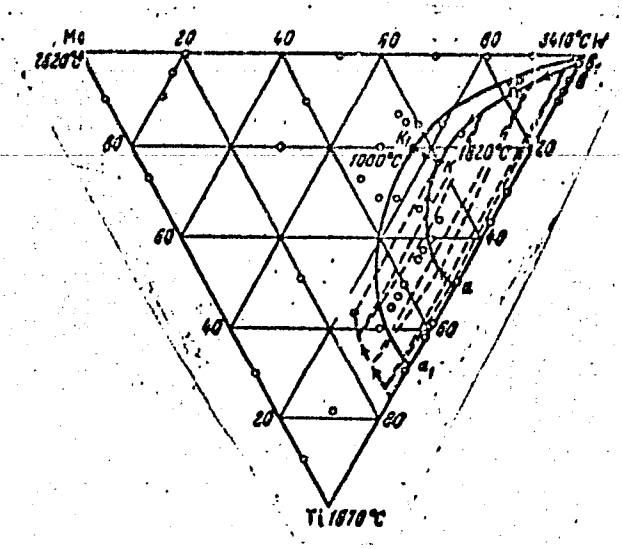
SOURCE: AN SSSR. Izvestiya. Metally, no. 6, 1966, 121-126

TOPIC TAGS: tungsten molybdenum titanium system, tungsten molybdenum titanium alloy, alloy phase diagram, alloy phase composition, alloy structure

ABSTRACT: A series of 49 alloys of the tungsten-molybdenum-titanium system were melted from 99.95%-pure tungsten, 99.95%-pure molybdenum, and 99.9%-pure titanium. A ternary diagram of the system was plotted on the basis of data obtained by physicochemical analysis. It was found that tungsten and titanium have a considerable solid-state solubility in molybdenum, which slightly decreases with decreasing temperature. For instance, the total solubility of tungsten and titanium in molybdenum at 1500C and a W:Ti ratio of 4:1 was over 80%, but at 1000C it dropped to 77—78%. The total solubility of a W:Ti ratio of 3:2 changed similarly when the temperature dropped from 1500 to 1000. Addition of molybdenum to binary W-Ti alloys increases the mutual solubility of components. At 1500 and 1000C, a continuous series of solid solutions is formed at respective molybdenum contents of about 20% and 25%.

Card 1/2 UDC: 669.275.28.295

ACC NR: AP6036144



Orig. art. has: 6 figures and 1 table.
SUB CODE: 11/ SUBM DATE: 01Mar66/ ORIG REF: 002/ OTH REF: 008/ ATD PRESS: 5108
Card 2/2

ACC NR: AR6004340 SOURCE CODE: UR/0274/65/000/009/B054/B054

AUTHOR: Zakharov, A. M.

REF SOURCE: Tr. uchebn. in-tov svyazi. M-vo svyazi SSSR, vyp. 23, 1964, 68-77

TITLE: The question of neutralizing microwave amplifiers 25

SOURCE: Ref. zh. Radiotekhnika i elektrosvyaz', Abs. 9B377

TOPIC TAGS: millimeter wave amplifier, UHF amplifier, circuit design, broadband communication

TRANSLATION: An external circuit of a UHF amplifier containing a line segment is examined and the transformation of this circuit into a П-shaped four-pole network is demonstrated. An equation for neutralization is derived. Three variations of communication circuits are analyzed. These variations are inductive-inductive, capacitive--capacitive, and inductive-capacitive. The following conclusions are made on the basis of the analysis: 1) The external circuit for UHF communication, containing a line segment is equivalent to a capacitance or an inductance with a positive or negative value. 2) Any of the circuit forms examined may be used for the neutralization of the stray capacitance. The inductive-inductive and inductive-capacitive are the most suitable (from the point of view of tuning the communication circuit). These circuits make it possible to request communication without any essential disruption to the opti-

UDC: 621.375

Card 1/2

ACC NR: AR6004340

mal functioning of the circuit. 3) In selecting the parameters of external communication circuits, for greater broadband neutralization, it is necessary to use cable of shorter length and a higher wave impedance. The inductance of the connecting coil should be made small. V. L.

SUB CODE: 09,17/ SUBM DATE: none

Card 2/2

ACC NR: AP6031725 SOURCE CODE: UR/0370/66/000/005/0159/0168

AUTHOR: Zakharov, A. M. (Moscow); Savitskiy, Ye. M. (Moscow)

ORG: none

TITLE: Investigation of phase diagram of ternary tungsten-zirconium-titanium system

SOURCE: AN SSSR. Izvestiya. Metally, no. 5, 1966, 159-168

TOPIC TAGS: ZIRCONIUM CONTAINING ALLOY, TITANIUM CONTAINING ALLOY, ternary alloy, tungsten zirconium titanium alloy, alloy structure, alloy microhardness, tungsten zirconium titanium system, ALLOY PHASE DIAGRAM, TERNARY ALLOY, TUNGSTEN CONTAINING ALLOY

ABSTRACT: Sixty-three tungsten-zirconium-titanium alloys containing 0.0—50.90% tungsten, 0.0—49.40% zirconium and 0.0—51.92% titanium have been investigated. From the data obtained the projection of the ternary phase diagram on the composition triangle (see Fig. 1) was plotted, in addition to several polythermal and isothermal sections. It was found that most alloys annealed at 1500C or 1000C have a single-phase or two-phase structure and only a few have a three-phase structure. Single-phase alloys consisted of α- and β-solid solution of titanium and zirconium in tungsten or vice versa. The microhardness of W_2Zr compound in annealed alloys was 770 kg/mm^2, that of α, ternary tungsten-base solid solution was 390 kg/mm^2, and that of β-solid

Card 1/3 UDC: 669.27'296'295

ACC NR: AP6031725

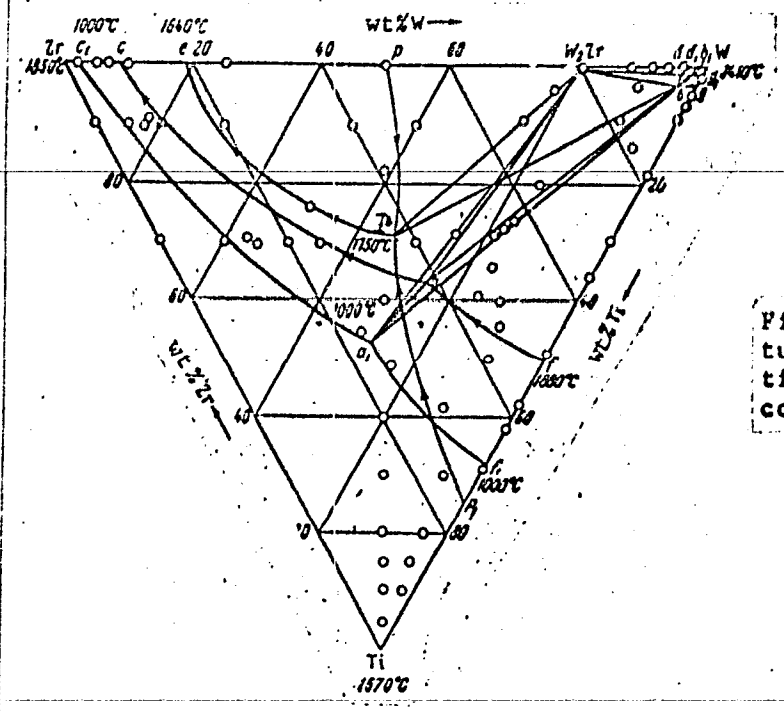


Fig. 1. Projection of tungsten-zirconium-titanium phase diagram on composition triangle

Card 2/3

ACC NR: AP6031725

solution based on high-temperature modifications of titanium and zirconium varied from 125 to 200 kg/mm^2, depending upon composition. The solubility of tungsten and zirconium in β-titanium was found to be high, but decreased from 43—44% at 1500C to 35—36% at 1000C. The increase of titanium content promoted the tungsten solubility in β-zirconium at 1500C and also at 1000C. Orig. art. has: 6 figures.

SUB CODE: 11/ SUBM DATE: 01Mar66/ ORIG REF: 003/ OTH REF: 005

Card 3/3

ZAKHAROV, A.M.; KABANOV, S.M.

Active substances of some species of plants of the Tien Shan flora. Apt. delo 13 no.5:29-33 S-O '64. (MIRA 18:3

1. Przheval'skaya zonal'naya opytnaya stantsiya lekarstvennykh rasteniy Vsesoyuznogo nauchno-issledovatel'skogo instituta lekarstvennykh i aromaticheskikh rasteniy.

ZAKHAROV, A.M. (Moskva); SAVITSKIY, Ye.M. (Moskva)

Studying the ternary constitutional diagram of W-Mo-Zr.
Izv. AN SSSR. Met. no.1:150-159 Ja-F '65. (MIRA 18:5)

SAVITSKIY, Ye.M.; ZAKHAROV, A.M.

Studying the mechanical properties of alloys in the system Nb - W - Mo - Zr. Metalloved. i term. obr. met. no.3:8-16 Mr '65. (MIRA 18:10)

1. Institut metallurgii im. A.A. Baykova.

ZAKHAROV, A.M.

Constructing conodes in two-phase volumes of quaternary constitutional diagrams by the microhardness method. Izv. vys. ucheb. zav.; tsvet. met. 8 no.3:121-126 '65.
(MIRA 18:9)

1. Moskovskiy institut stali i splavov, kafedra metallovedeniya tsvetnykh, redkikh i radioaktivnykh metallov.

L 9469-66 EPF(n-2)/EWT(m)/EWP(t)/EWP(b) IJP(c) JD/WW/JG

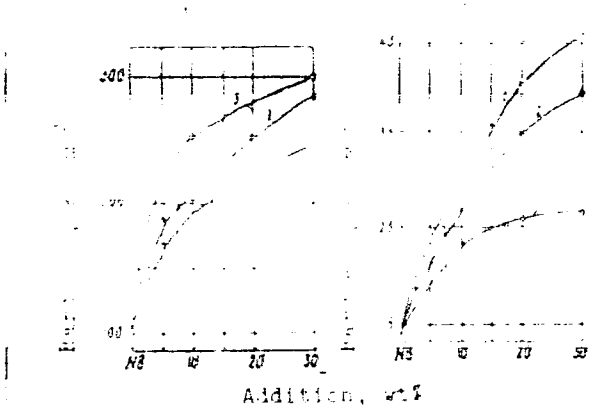
ORG: Institute of Metallurgy im. A. A. Baykov (Institut metallurgii)

hardening

ABSTRACT: To determine the individual and combined effect of tungsten, molybdenum, and [illegible] on the hardness of [illegible], binary Nb-W, Nb-Mo and Nb-Zr, and ternary Nb-W-Zr and Nb-Mo-Zr alloys were arc-melted from 99.9%-

Card

L 9440-66



Addition, wt.%

ZAKHAROV, A.M.; [illegible], K.I.

Chemical study of plants of the Tien Shan flora. Apt. delo 14 no.5:44-48 S-O '65. (MIRA 18:11)

1. Laboratoriya biokhimii Przheval'skoy zonal'noy opytnoy stantsii Vsesoyuznogo instituta lekarstvennykh i aromaticheskikh rasteniy.

ZAYTSEV, Yuriy Ivanovich; VASIL'YEV, V.K., doktor tekhn. nauk, prof., retsenzent; IPATENKO, A.Ya., kand. tekhn. nauk dots., retsenzent; BERG, V.E., inzh., retsenzent; ZAKHAROV, A.M., kand. tekhn. nauk, dots., retsenzent; KHRYAPCHENKOV, A.S., kand. tekhn. nauk, dots., retsenzent; MOISEYEV, A.A., nauchn. red.; SHAMRAK, Ye.N., red.

[Fundamentals of the design of marine steam turbines] Osnovy proektirovaniia sudovykh parovykh turboagregatov. Leningrad, Sudostroenie, 1965. 495 p. (MIRA 18:12)

IVANOV, D.A.; KUZNETSOV, O.I.; ZAKHAROV, A.N., inzh.; KLYUCHEV, V.M.; KITOV, P.V.

Replies to S.M.IAkushev's article "What we expect from industry." Vest. sviazi 22 no.10:25-26 O '62. (MIRA 15:11)

1. Nachal'nik Leningradskoy oblastnoy direktsii radiotranslyatsionnoy seti (for Ivanov). 2. Starshiy inzh. vnutrirayonnoy svyazi Tomskoy kontory svyazi (for Kuznetsov). 3. Nachal'nik laboratorii Gor'kovskoy oblastnoy direktsii radiotranslyatsionnoy seti (for Klyuchev). 4. Nachal'nik Khar'kovskoy direktsii radiotranslyatsionnoy seti (for Kitov).

(Electric equipment industry)
(Radio--Equipment and supplies)
(IAkushev, S.M.)

ZAKHAROV, A.N., master

Machine for groove rolling on semiebonite rollers. Tekst.prom. 22 no.9:81 S '62. (MIRA 15:9)

1. TSekh mekhanizatsii l'nokombinata "Tul'ma".
(Plastics cutting) (Spinning machinery)

KORCHINSKIY, A.V., inzh.; ZAKHAROV, A.N., inzh.

Automation of ammonia production processes. Mekh. i avtom. proizv 15 no.3:10-14 Mr '61. (MIRA 14:3)
(Automation) (Ammonia)

ZAKHAROV, A.N.

Trends in the development of waste heat installations for rotary furnaces in the refractories industry. Prom.energ. 15 no.2:11-13 F '60. (MIRA 13:5)

1. Leningradskiy institut ogneuporov.
(Furnaces)
(Refractories industry--Equipment and supply)
(Heat regenerators)

ZAKHAROV, A.N.

SHUBNIKOV, A.N., professor, redaktor; TEKHNIKHIN, Ye.F.; SHAPROV, M.F.; ZAKHAROV, A.N.; KUMSKOV, V.T., kandidat tekhnicheskikh nauk, redaktor; VERTINA, G.P., tekhnicheskiy redaktor

[Technology of fuels, water and lubricants] Tekhnologiia topliva, vody i smazki. Moskva, Gos. transp. zhel-dor. izd-vo, 1954. 404 p. (MLRA 7:10)
(Fuel) (Water)
(Lubrication and lubicants)

ZAKHAROV, A.N.

Comparison between the theoretically possible and actual procedures in problem solving. Vop.psikhol. 5 no.6:110-118 N-D '59. (MIRA 13:4)

1. Institut psikhologii APN RSFSR, Moskva.
(Learning, Psychology of)

ZAKHAROV, A. N.

KHRISANFOVA, Anna Ivanovna; SHUBNIKOV, Aleksey Kus'mich; ZAKHAROV, Aleksandr Nikitovich; GUSEV, Rostislav Petrovich [deceased]; SKOCHINSKIY, A.A., akademik, otv.red.; BANKVITSER, A.L., red.izd-va; SIMKINA, G.S., tekhn.red.

[Inhibitors of oxidation and self-ignition of coal] Ingibitory dlia bor'by s okisleniem i samovozgoraniem iskopaemykh ugley. Moskva, Izd-vo Akad.nauk SSSR, 1959. 136 p. (MIRA 13:1)
(Coal--Storage) (Antioxidants)

YAKOBSON, I.A., inzh.; ZAKHAROV, A.P., tekhnik

Use of cast casings from epoxy resin compounds in the installation of outdoor-type cable jointing sleeves. Elek. sta. 35 no.3:51-54 Mr '64. (MIRA 17:6)

FLYAKSBERGER, B.K., rabochiy; PETROV, G.V., rabochiy; ZAKHAROV, A.P., rabochiy.

Centrifugal casting machine for making bimetallic bush bearings. Biul. tekh. inform. 4 no.5:30 My '58. (MIRA 11:8)

1. Baza mekhanizatsii tresta No.103.
(Centrifugal casting)

ZAKHAROV, A.P., kand.med.nauk, zaslyzhennyy vrach RSFSR.

Some comments on surgical techniques in transplanting Stensen's duct in treating cicatricial xerosis. Oft.zhur. 13 no.3:180-181 '58 (MIRA 11:6)

1. Iz Kuybyshevskogo oblastnogo trakhomatoznogo dispansera (glavvrach - M.E. Berkovich).
(SALIVARY GLANDS--TRANSPLANTATION)
(CONJUNCTIVA--DISEASES)

ZAKHAROV, A.P., kand.med.nauk, zasluzhennyy vrach RSFSR

Dacryocystorhinostomy as modified by the author. Oft. zhur. 16 no.1:51-55 '61. (MIRA 14:3)

1. Iz Kuybyshevskogo oblastnogo trakhomatoznogo dispansera.
(DACRYOCYSTORHINOSTOMY)

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Character of the mechanism of plastic deformation. Izv. vys. ucheb. zav.; chern. met. 6 no.11:161-167 '63. (MIRA 17:3)

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Revealing flow lines in the deformation of highly resistant aluminum alloys. Izv. vys. ucheb. zav.; tsvet. met. 6 no.3:137-143 '63. (MIRA 16:9)

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S/024/60/000/02/029/031
E140/E135

AUTHORS: Zakharov, A.V., and Mayorov, A.V. (Moscow)
TITLE: The Question of Reliability of Control Equipment

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Energetika i avtomatika, 1960, Nr 2, pp 205-207 (USSR)

ABSTRACT: In the technical exploitation of equipment its parameters vary with time. As a result it is necessary to undertake periodic maintenance and emergency repairs. It is important to determine the optimum period and volume of maintenance for reasons of economy and reliability. Since in practice it is difficult to obtain sufficient statistical information for an analytical solution the following procedure may be employed. The mathematical expectation of breakdown is found and if it is less than the time required for testing the equipment during maintenance, the volume of the latter is considered satisfactory. It is necessary to vary the volume and interval between maintenance operations to determine their optimum value.
There are 4 figures and 2 Soviet references.

Card 1/1

SUBMITTED: October 15, 1959

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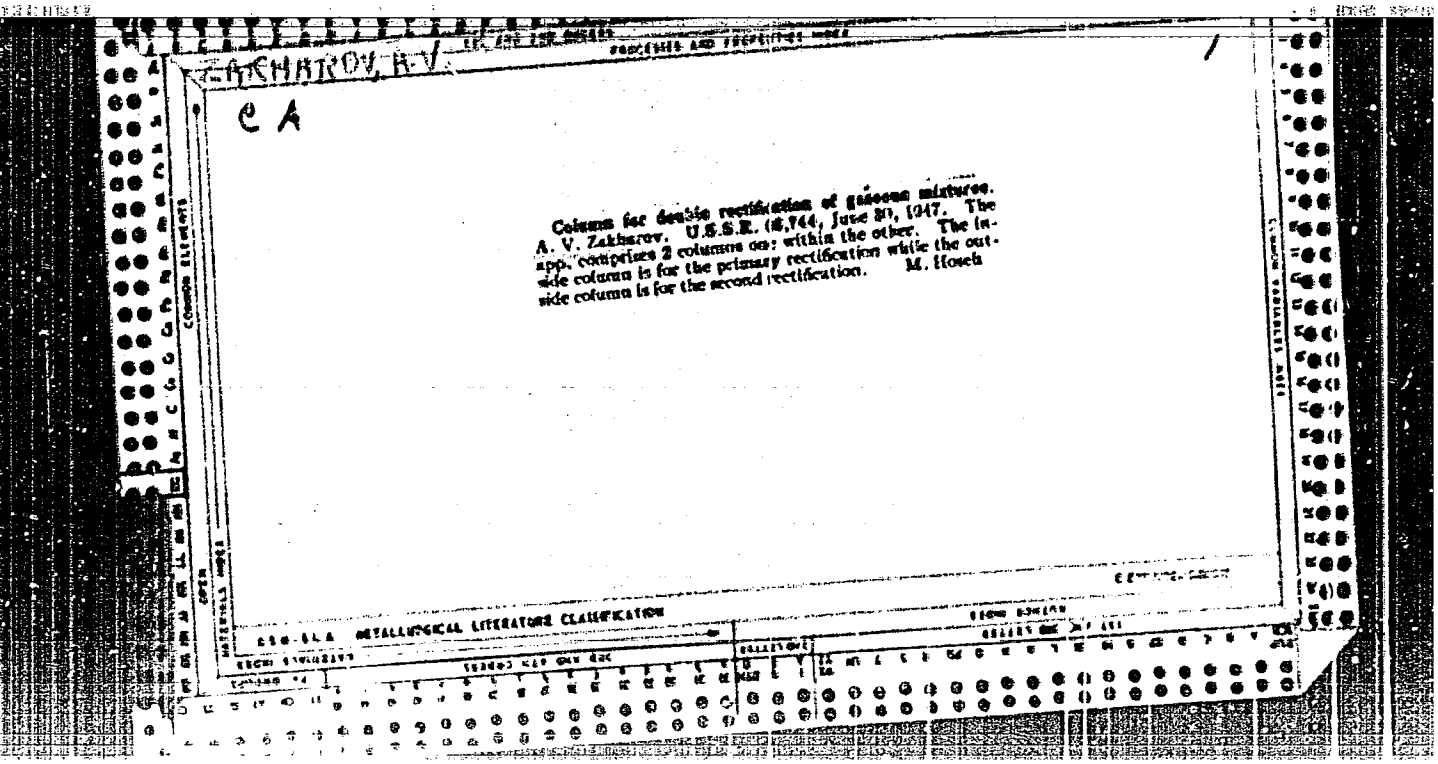
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